RED SEAL

THE INTERPROVINCIAL STANDARDS RED SEAL PROGRAM

National Occupational Analysis

2012 | Glazier

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Glazier

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FOREWORD

The Canadian Council of Directors of Apprenticeship (CCDA) recognizes this National Occupational Analysis (NOA) as the national standard for the occupation of Glazier.

Background

The first National Conference on Apprenticeship in Trades and Industries, held in Ottawa in 1952, recommended that the federal government be requested to cooperate with provincial and territorial apprenticeship committees and officials in preparing analyses of a number of skilled occupations. To this end, Human Resources and Social Development Canada sponsors a program, under the guidance of the CCDA, to develop a series of NOAs.

The NOAs have the following objectives:

- to describe and group the tasks performed by skilled workers;
- to identify which tasks are performed by skilled workers in every province and territory;
- to develop instruments for use in the preparation of Interprovincial Red Seal Examinations and curricula for training leading to the certification of skilled workers;
- to facilitate the mobility of apprentices and skilled workers in Canada; and,
- to supply employers, employees, associations, industries, training institutions and governments with analyses of occupations.

ACKNOWLEDGEMENTS

The CCDA and HRSDC wish to express sincere appreciation for the contribution of the many tradespersons, industrial establishments, professional associations, labour organizations, provincial and territorial government departments and agencies, and all others who contributed to this publication.

Special acknowledgement is extended to the following representatives who attended a national workshop to develop the previous edition of this NOA in 2008.

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This 2012 edition of the NOA was reviewed, updated and validated by industry representatives from across Canada to ensure that it continues to represent the skills and knowledge required in this trade. The coordinating, facilitating and processing of this analysis were undertaken by employees of the NOA development team of the Trades and Apprenticeship Division of HRSDC. The host jurisdiction of British Columbia also participated in the development of this NOA.

Comments or questions about NOAs may be forwarded to:

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STRUCTURE OF ANALYSIS

To facilitate understanding of the occupation, the work performed by tradespersons is divided into the following categories:

Blocks	the largest division within the analysis that is comprised of a distinct set of trade activities
Tasks	distinct actions that describe the activities within a block
Sub-Tasks	distinct actions that describe the activities within a task
Supporting Knowledge and Abilities	skills and knowledge that an individual must have to perform a sub-task

The analysis also provides the following information:

Trends	changes identified that impact or will impact the trade including work practices, technological advances, and new materials and equipment
Related Components	a list of products, items, materials and other elements relevant to the block
Tools and Equipment	categories of tools and equipment used to perform all tasks in the block; these tools and equipment are listed in Appendix A
Context	information to clarify the intent and meaning of tasks

The appendices located at the end of the analysis are described as follows:

Appendix A — Tools and Equipment	a non-exhaustive list of tools and equipment used in this trade
Appendix B — Glossary	definitions or explanations of selected technical terms used in the analysis
Appendix C — Acronyms	a list of acronyms used in the analysis with their full name
Appendix D — Block and Task Weighting	the block and task percentages submitted by each jurisdiction, and the national averages of these percentages; these national averages determine the number of questions for each block and task in the Interprovincial exam
Appendix E — Pie Chart	a graph which depicts the national percentages of exam questions assigned to blocks
Appendix F — Task Profile Chart	a chart which outlines graphically the blocks, tasks and sub-tasks of this analysis

DEVELOPMENT AND VALIDATION OF ANALYSIS

Development of Analysis

A draft analysis is developed by a committee of industry experts in the field led by a team of facilitators from HRSDC. This draft analysis breaks down all the tasks performed in the occupation and describes the knowledge and abilities required for a tradesperson to demonstrate competence in the trade.

Draft Review

The NOA development team then forwards a copy of the analysis and its translation to provincial and territorial authorities for a review of its content and structure. Their recommendations are assessed and incorporated into the analysis.

Validation and Weighting

The analysis is sent to all provinces and territories for validation and weighting. Participating jurisdictions consult with industry to validate and weight the document, examining the blocks, tasks and sub-tasks of the analysis as follows:

BLOCKS	Each jurisdiction assigns a percentage of questions to each block for an examination that would cover the entire trade.
TASKS	Each jurisdiction assigns a percentage of exam questions to each task within a block.
SUB-TASKS	Each jurisdiction indicates, with a YES or NO, whether or not each sub-task is performed by skilled workers within the occupation in its jurisdiction.

The results of this exercise are submitted to the NOA development team who then analyzes the data and incorporates it into the document. The NOA provides the individual jurisdictional validation results as well as the national averages of all responses. The national averages for block and task weighting guide the Interprovincial Red Seal Examination plan for the trade.

This method for the validation of the NOA also identifies common core sub-tasks across Canada for the occupation. If at least 70% of the responding jurisdictions perform a sub-task, it shall be considered common core. Interprovincial Red Seal Examinations are based on the common core sub-tasks identified through this validation process.

Definitions for Validation and Weighting

YES	sub-task performed by qualified workers in the occupation in a specific jurisdiction
NO	sub-task not performed by qualified workers in the occupation in a specific jurisdiction
NV	analysis Not Validated by a province/territory
ND	trade Not Designated in a province/territory
NOT COMMON CORE (NCC)	sub-task, task or block performed by less than 70% of responding jurisdictions; these will not be tested by the Interprovincial Red Seal Examination for the trade
NATIONAL AVERAGE %	average percentage of questions assigned to each block and task in Interprovincial Red Seal Examination for the trade

Provincial/Territorial Abbreviations

NL	Newfoundland and Labrador
NS	Nova Scotia
PE	Prince Edward Island
NB	New Brunswick
QC	Quebec
ON	Ontario
MB	Manitoba
SK	Saskatchewan
AB	Alberta
BC	British Columbia
NT	Northwest Territories
YT	Yukon Territory
NU	Nunavut

ANALYSIS

Safe working procedures and conditions, accident prevention, and the preservation of health are of primary importance to industry in Canada. These responsibilities are shared and require the joint efforts of government, employers and employees. It is imperative that all parties become aware of circumstances that may lead to injury or harm. Safe learning experiences and work environments can be created by controlling the variables and behaviours that may contribute to accidents or injury.

It is generally recognized that safety-conscious attitudes and work practices contribute to a healthy, safe and accident-free work environment.

It is imperative to apply and be familiar with the Occupational Health and Safety (OH&S) Acts and Workplace Hazardous Materials Information System (WHMIS) Regulations. As well, it is essential to determine workplace hazards and take measures to protect oneself, co-workers, the public and the environment.

Safety education is an integral part of training in all jurisdictions. As safety is an imperative part of all trades, it is assumed and therefore it is not included as a qualifier of any activities. However, the technical safety tasks and sub-tasks specific to the trade are included in this analysis.

SCOPE OF THE GLAZIER TRADE

"Glazier" is this trade's official Red Seal occupational title approved by the CCDA. This analysis covers tasks performed by glaziers whose occupational title has been identified by some provinces and territories of Canada under the following names:

	NL	NS	PE	NB	QC	ON	MB	SK	AB	BC	NT	YT	NU
Erector Mechanic (Glazier)					✓								
Glassworker								✓					
Glazier	✓	✓	✓	✓			✓		✓	✓	✓	✓	✓
Architectural Glass and Metal Mechanic						✓							

Glaziers measure, handle, cut, prepare, fit, install, replace and repair all types of glass and glass substitutes, typically in commercial, residential and transportation applications. In commercial applications, they fabricate and install curtain wall framing, aluminium storefront frames and entrances, structural silicone glazing (SSG), skylights and sloped glazing. In residential applications, they install doors and windows. In transportation applications, glaziers repair and replace glass products.

Glaziers also install specialty glass products such as glass railings, smoke baffles, shower enclosures, and glass and mirror walls. Other duties include layout, preparation, fabrication and replacement of architectural metal components in systems such as entranceways, windows, skylights and curtain walls.

Most glaziers work on construction or renovation projects. Others may work in specialized fields, such as replacing windows and windshields in vehicles, or installing skylights and other special glassworks in churches, museums and other establishments. Glaziers are employed by construction glass installation contractors, fabrication shops, retail service and repair shops. They may also be self-employed.

Besides working with glass, glaziers also work with plastics, granite, and other similar materials used as glass substitutes, as well as films or laminates that improve the durability or safety of the glass. Glaziers are also involved in manufacturing display cabinets and decorative windows. They may also be requested to create custom-designed glass installations for residential and commercial use.

Glaziers require good reading, writing and verbal communication skills, as well as mathematical ability to accomplish tasks within their trade. Physical strength and stamina are necessary to work with heavy glass materials, and good eyesight is needed to measure, cut and detect flaws in glass and other materials. Manual dexterity and the ability to work alone and in teams are important qualities for those working in this trade. As well, analytical ability and

troubleshooting skills are important assets in this trade, especially in the context of renovation and repair projects involving older structures and products.

Glaziers work in a variety of environments; some work outdoors on construction sites while others work indoors, in shops. When working on commercial applications, glaziers are expected to work from man-lift mobile equipment, scaffolds and swing stages, sometimes at great heights, to manoeuvre glass panels that are lifted by cranes and other lifting equipment. Glaziers do a considerable amount of bending, kneeling, lifting, and standing during the installation process. There are some risks of injuries from lifting heavy materials, repetitive actions, sharp edges and broken glass.

This analysis recognizes similarities or overlaps with the work of carpenters, roofers, bricklayers, tilesetters, ironworkers and motor vehicle body repairers.

With experience, glaziers may act as mentors and trainers to apprentices in the trade. Glaziers may advance to supervisory positions such as foremen or contract managers, or set up their own shops.

There is an increase in the amount of fabrication that is done in a controlled shop environment, leading to faster installation times of unitized panels. This leads to a corresponding rise in the use of hoisting and rigging equipment, both in the shop and on-site.

Due to the improvements in the thermal capacity of modern glass, as well as greater client demand for windows that admit more natural light and permit better outside views, the industry has seen an increase in the use of larger, heavier modules. This results in glaziers having to increase their knowledge of and their ability to use hoisting and rigging equipment.

With more complex building shapes, aerial work platforms, such as specialized swing stages, are used more often. As such, glaziers need a better understanding of their operation, and must comply with certification requirements to use this equipment.

Older buildings often have outdated materials that no longer comply with established industry standards. During renovations, replacing old windows, doors and specialized glass products requires glaziers to adapt modern glazing methods to suit existing structures and maintain the integrity of the building.

Due to environmental concerns, there is greater demand for Leadership in Energy and Environmental Design (LEED) building structures, increasing the insulation value of the building. As a result, high performance glazing products, such as low-E glass, argon gas filled sealed units and upgrades in thermally-broken extrusions, are used more often. There is greater emphasis on proper membrane installation to improve the integrity of the overall building envelope.

In the residential sector, consumers are now using approved *Energy Star* windows to save on energy.

The safety of workers and the public is becoming a more important issue, resulting in increased safety training and more emphasis on personal protective equipment.

Trends

New technologies allow materials and products to be moved into place in an easier and safer manner.

Laws and regulations are more stringent, increasing safety awareness and promoting skill upgrades. For example, tasks related to scaffolding, hoisting, lifting and rigging are requiring add-on training or certification.

Safety concerns have resulted in increased communication in the workplace.

New glazing systems are using structural silicones as their sealing and fastening methods.

More and more, the cutting and edging of glass is being done in the shop/factory rather than on-site.

The use of computers on the job for plans, estimates and specifications is expected to rise.

Related Components

All components apply.

Tools and Equipment

See Appendix A.

Context

Glaziers require occupational skills to accomplish their tasks in a safe and efficient manner. With appropriate training, they learn how to use tools and equipment properly. Glaziers must become familiar with different types of glass, tools and other materials in order to select them according to the task.

Task 1 Uses and maintains tools and equipment.

Sub-task

A-1.01 Maintains hand tools.

NL	NS	PE	NB	QC	ON	MB	SK	AB	BC	NT	YT	NU
NV	yes	yes	NV	NV	yes	yes	yes	yes	yes	NV	NV	NV

Supporting Knowledge & Abilities

A-1.01.01	knowledge of types of hand tools such as pry bars, hand pump suction cups, chisels and bevels
A-1.01.02	knowledge of limitations of hand tools
A-1.01.03	ability to clean and lubricate hand tools
A-1.01.04	ability to sharpen hand tools
A-1.01.05	ability to store hand tools
A-1.01.06	ability to recognize worn, damaged and defective hand tools, and remove from service

Sub-task

A-1.02 Maintains portable power tools.

NL	NS	PE	NB	QC	ON	MB	SK	AB	BC	NT	YT	NU
NV	yes	yes	NV	NV	yes	yes	yes	yes	yes	NV	NV	NV

Supporting Knowledge & Abilities

A-1.02.01	knowledge of types of portable power tools such as circular saws, power suction cups, drills and chop saws
A-1.02.02	knowledge of limitations of portable power tools
A-1.02.03	ability to clean portable power tools
A-1.02.04	ability to change components such as blades, driver tips and drill bits
A-1.02.05	ability to lubricate components
A-1.02.06	ability to store portable power tools
A-1.02.07	ability to adjust portable power tools according to need

A-1.02.08	ability to recognize worn, damaged and defective portable power tools, and remove from service
A-1.02.09	ability to charge portable power tools

Sub-task

A-1.03 **Maintains stationary power tools.**

NL	NS	PE	NB	QC	ON	MB	SK	AB	BC	NT	YT	NU
NV	yes	yes	NV	NV	yes	yes	yes	yes	yes	NV	NV	NV

Supporting Knowledge & Abilities

A-1.03.01	knowledge of types of stationary power tools such as drill presses, table saws and radial arm saws
A-1.03.02	knowledge of limitations of stationary power tools
A-1.03.03	ability to clean stationary power tools
A-1.03.04	ability to change components such as blades and drill bits
A-1.03.05	ability to lubricate components
A-1.03.06	ability to recognize when calibration of stationary power tools is needed
A-1.03.07	ability to adjust stationary power tools
A-1.03.08	ability to recognize worn, damaged and defective stationary power tools, and remove from service

---

Sub-task

A-1.04 **Maintains layout and measuring equipment.**

NL	NS	PE	NB	QC	ON	MB	SK	AB	BC	NT	YT	NU
NV	yes	yes	NV	NV	yes	yes	yes	yes	yes	NV	NV	NV

Supporting Knowledge & Abilities

A-1.04.01	knowledge of types of layout and measuring equipment such as builder's levels, laser levels and transits
A-1.04.02	knowledge of limitations of layout and measuring equipment
A-1.04.03	ability to clean layout and measuring equipment

A-1.04.04	ability to store layout and measuring equipment
A-1.04.05	ability to recognize when calibration of layout and measuring equipment is needed
A-1.04.06	ability to recognize worn, damaged and defective layout and measuring equipment, and remove from service

---

Sub-task

A-1.05 Uses scaffolding and access equipment.

NL	NS	PE	NB	QC	ON	MB	SK	AB	BC	NT	YT	NU
NV	yes	yes	NV	NV	yes	yes	yes	yes	yes	NV	NV	NV

Supporting Knowledge & Abilities

A-1.05.01	knowledge of types of access equipment such as scissor lifts, platform lifts, swing stages and articulated boom lifts
A-1.05.02	knowledge of types of scaffolding such as Baker, tubular and frame
A-1.05.03	knowledge of regulations and certification requirements for use of scaffolding and access equipment
A-1.05.04	knowledge of fall protection requirements
A-1.05.05	knowledge of safe angles of ladders
A-1.05.06	knowledge of three-point contact rule
A-1.05.07	knowledge of worksite surroundings such as trenching, pits and overhead hazards
A-1.05.08	knowledge of limitations of scaffolding and access equipment
A-1.05.09	ability to set up step ladders, extension ladders and access equipment
A-1.05.10	ability to work from access equipment
A-1.05.11	ability to erect various types of scaffolding, as allowed by jurisdictional regulations
A-1.05.12	ability to recognize unsafe, worn, damaged and defective scaffolding and access equipment, and remove from service

Sub-task

A-1.06 **Uses rigging, hoisting and lifting equipment.**

NL	NS	PE	NB	QC	ON	MB	SK	AB	BC	NT	YT	NU
NV	yes	yes	NV	NV	yes	yes	yes	yes	yes	NV	NV	NV

Supporting Knowledge & Abilities

A-1.06.01	knowledge of types of rigging, hoisting and lifting equipment and attachments such as power cups, chains and slings
A-1.06.02	knowledge of certification requirements regarding rigging, hoisting and lifting equipment
A-1.06.03	knowledge of limitations of rigging, hoisting and lifting equipment
A-1.06.04	knowledge of anchor points
A-1.06.05	knowledge of lifting capacity and load ratings
A-1.06.06	knowledge of hand signals
A-1.06.07	knowledge of equipment inspection schedule
A-1.06.08	ability to select rigging, hoisting and lifting equipment and attachments according to application
A-1.06.09	ability to perform hazard assessments
A-1.06.10	ability to secure load
A-1.06.11	ability to clean, lubricate and store rigging, hoisting and lifting equipment and attachments
A-1.06.12	ability to recognize and remove from service worn, damaged and defective rigging, hoisting and lifting equipment and attachments

Sub-task

A-1.07 **Uses personal protective equipment (PPE) and safety equipment.**

NL	NS	PE	NB	QC	ON	MB	SK	AB	BC	NT	YT	NU
NV	yes	yes	NV	NV	yes	yes	yes	yes	yes	NV	NV	NV

Supporting Knowledge & Abilities

A-1.07.01	knowledge of types of PPE such as hard hats, safety glasses, safety footwear and fall arrest equipment
A-1.07.02	knowledge of certification and training requirements for PPE and safety equipment
A-1.07.03	knowledge of limitations of PPE and safety equipment
A-1.07.04	knowledge of types of safety equipment such as first aid kits, fire extinguishers and eye wash stations
A-1.07.05	knowledge of operation of fire extinguishing equipment
A-1.07.06	knowledge of location of PPE and safety equipment
A-1.07.07	knowledge of expiry date of PPE and safety equipment
A-1.07.08	ability to select PPE for task performed
A-1.07.09	ability to follow Workplace Hazardous Material Information System (WHMIS) procedures
A-1.07.10	ability to store PPE and safety equipment
A-1.07.11	ability to recognize worn, damaged and defective PPE and safety equipment, and remove from service

Task 2 Organizes work.

Sub-task

A-2.01 Interprets plans, drawings and specifications.

NL	NS	PE	NB	QC	ON	MB	SK	AB	BC	NT	YT	NU
NV	yes	yes	NV	NV	yes	yes	yes	yes	yes	NV	NV	NV

Supporting Knowledge & Abilities

A-2.01.01	knowledge of components of plans, drawings and specifications such as scale, legend, details and symbols
A-2.01.02	ability to cross reference plans, drawings and specifications
A-2.01.03	ability to locate information on plans, drawings and specifications
A-2.01.04	ability to scale dimensions
A-2.01.05	ability to visualize finished product
A-2.01.06	ability to perform mathematical calculations

Sub-task

A-2.02 Uses documentation and reference material.

NL	NS	PE	NB	QC	ON	MB	SK	AB	BC	NT	YT	NU
NV	yes	yes	NV	NV	yes	yes	yes	yes	yes	NV	NV	NV

Supporting Knowledge & Abilities

A-2.02.01	knowledge of types of documents such as shop drawings and catalogues
A-2.02.02	knowledge of company policies and procedures
A-2.02.03	knowledge of Occupational Health and Safety (OH&S) rules and regulations
A-2.02.04	knowledge of WHMIS symbols and Material Safety Data Sheets (MSDS)
A-2.02.05	ability to complete work-related documents such as cut lists, work orders, log books and time sheets

A-2.02.06	ability to fill out safety documentation such as hazard assessments, tool box meeting records and first aid logs
A-2.02.07	ability to interpret manuals and manufacturers' specifications

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Sub-task

A-2.03 Communicates with others.

NL	NS	PE	NB	QC	ON	MB	SK	AB	BC	NT	YT	NU
NV	yes	yes	NV	NV	yes	yes	yes	yes	yes	NV	NV	NV

Supporting Knowledge & Abilities

A-2.03.01	knowledge of trade terminology
A-2.03.02	ability to communicate identified hazards
A-2.03.03	ability to communicate with supervisors
A-2.03.04	ability to coordinate work with other trades
A-2.03.05	ability to participate in safety and information meetings
A-2.03.06	ability to communicate with clients and non-tradespersons
A-2.03.07	ability to communicate with engineers and architects
A-2.03.08	ability to mentor apprentices

Sub-task

A-2.04 Prepares list of materials and supplies.

NL	NS	PE	NB	QC	ON	MB	SK	AB	BC	NT	YT	NU
NV	yes	yes	NV	NV	yes	yes	yes	yes	yes	NV	NV	NV

Supporting Knowledge & Abilities

A-2.04.01	knowledge of project or task to be completed
A-2.04.02	knowledge of site conditions and restrictions
A-2.04.03	knowledge of required materials
A-2.04.04	ability to identify required materials and supplies according to plans and specifications
A-2.04.05	ability to perform mathematical calculations
A-2.04.06	ability to interpret site measurements and instructions

A-2.04.07	ability to do a material take-off
A-2.04.08	ability to do inventory control

Sub-task

A-2.05 Plans project tasks.

NL	NS	PE	NB	QC	ON	MB	SK	AB	BC	NT	YT	NU
NV	yes	yes	NV	NV	yes	yes	yes	yes	yes	NV	NV	NV

Supporting Knowledge & Abilities

A-2.05.01	knowledge of other trades' work requirements
A-2.05.02	knowledge of delivery dates and availability of materials
A-2.05.03	knowledge of sequence of operations
A-2.05.04	ability to establish and maintain schedules
A-2.05.05	ability to determine labour and equipment requirements
A-2.05.06	ability to coordinate work such as shutdown requirements and installation sequencing
A-2.05.07	ability to draw and sketch layouts
A-2.05.08	ability to give and follow directions and instructions
A-2.05.09	ability to estimate time required to accomplish tasks

Task 3 Performs routine activities.

Sub-task

3.01 Inspects work area.

NL	NS	PE	NB	QC	ON	MB	SK	AB	BC	NT	YT	NU
NV	yes	yes	NV	NV	yes	yes	yes	yes	yes	NV	NV	NV

Supporting Knowledge & Abilities

3.01.01	knowledge of safety requirements
3.01.02	knowledge of other trades on-site
3.01.03	knowledge of evacuation routes
3.01.04	knowledge of first aid location
3.01.05	ability to perform hazards assessments
3.01.06	ability to recognize warning signals such as air horns and fire alarms
3.01.07	ability to identify location of storage areas for tools and materials
3.01.08	ability to determine setup areas for access equipment and scaffolding
3.01.09	ability to recognize potential hazards such as site conditions, tripping hazards and work being performed

Sub-task

A-3.02 Prepares worksite.

NL	NS	PE	NB	QC	ON	MB	SK	AB	BC	NT	YT	NU
NV	yes	yes	NV	NV	yes	yes	yes	yes	yes	NV	NV	NV

Supporting Knowledge & Abilities

A-3.02.01	knowledge of location of jobsite
A-3.02.02	knowledge of building codes and regulations
A-3.02.03	knowledge of job-specific orientation requirements
A-3.02.04	knowledge of required equipment such as boom lifts, cranes and hydro lifts
A-3.02.05	knowledge of worksite hazards
A-3.02.06	ability to perform hazard assessments
A-3.02.07	ability to control site access

A-3.02.08	ability to lay out job materials and equipment
A-3.02.09	ability to determine utility requirements
A-3.02.10	ability to identify and prepare storage areas for material and equipment

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Sub-task

A-3.03 Handles glass and other materials.

NL	NS	PE	NB	QC	ON	MB	SK	AB	BC	NT	YT	NU
NV	yes	yes	NV	NV	yes	yes	yes	yes	yes	NV	NV	NV

Supporting Knowledge & Abilities

A-3.03.01	knowledge of lifting and handling techniques
A-3.03.02	knowledge of lifting tools and aids such as suction cups, gloves and slings
A-3.03.03	knowledge of types of products such as tempered, laminated and float glass, vinyl and aluminium
A-3.03.04	knowledge of product protection devices and materials
A-3.03.05	knowledge of hazards associated with improper handling of glass and other materials
A-3.03.06	ability to select and use tools and equipment
A-3.03.07	ability to prepare glass and other materials
A-3.03.08	ability to clean glass and other materials
A-3.03.09	ability to detect flaws in glass
A-3.03.10	ability to load and transport glass and other materials

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Sub-task

A-3.04 Prepares materials for installation.

NL	NS	PE	NB	QC	ON	MB	SK	AB	BC	NT	YT	NU
NV	yes	yes	NV	NV	yes	yes	yes	yes	yes	NV	NV	NV

Supporting Knowledge & Abilities

A-3.04.01	knowledge of types of materials
A-3.04.02	knowledge of application of materials
A-3.04.03	knowledge of material-specific preparations

A-3.04.04	ability to select and use tools and equipment
A-3.04.05	ability to recognize defects in materials
A-3.04.06	ability to tape, drill and clean materials
A-3.04.07	ability to level and shim area prior to installation
A-3.04.08	ability to measure rough openings
A-3.04.09	ability to recognize dissimilar materials and substrates

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Sub-task

A-3.05 Stores glass and other materials.

NL	NS	PE	NB	QC	ON	MB	SK	AB	BC	NT	YT	NU
NV	yes	yes	NV	NV	yes	yes	yes	yes	yes	NV	NV	NV

Supporting Knowledge & Abilities

A-3.05.01	knowledge of types of products being stored
A-3.05.02	ability to select and use tools and equipment
A-3.05.03	ability to select storage location
A-3.05.04	ability to organize materials according to when they will be used
A-3.05.05	ability to protect materials from elements and damage
A-3.05.06	ability to secure products using methods such as tying knots, banding and strapping

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Sub-task

A-3.06 Performs glass cutting and edge treatment.

NL	NS	PE	NB	QC	ON	MB	SK	AB	BC	NT	YT	NU
NV	yes	yes	NV	NV	yes	yes	yes	yes	yes	NV	NV	NV

Supporting Knowledge & Abilities

A-3.06.01	knowledge of types of glass
A-3.06.02	knowledge of cutting techniques
A-3.06.03	knowledge of edging techniques such as arris, bevel and flat polish
A-3.06.04	knowledge of polishing techniques
A-3.06.05	knowledge of types of chemicals and solvents

A-3.06.06	knowledge of limitations of working with glass such as where to drill holes and sanding depth
A-3.06.07	knowledge of size tolerances prior to cutting or edging glass
A-3.06.08	ability to detect flaws in glass
A-3.06.09	ability to select and use tools and equipment such as belt sander, glass cutter, edger and wet sander
A-3.06.10	ability to measure according to specifications
A-3.06.11	ability to lay out cutting sizes in a sheet of glass to minimize waste
A-3.06.12	ability to clean glass
A-3.06.13	ability to drill, polish, arris and bevel glass

Sub-task

A-3.07 Installs building envelope membranes.

NL	NS	PE	NB	QC	ON	MB	SK	AB	BC	NT	YT	NU
NV	yes	yes	NV	NV	yes	yes	yes	yes	yes	NV	NV	NV

Supporting Knowledge & Abilities

A-3.07.01	knowledge of types of membranes such as torched-on, galvanized metal, peel-and-stick and Ethylene propylene diene monomer (EPDM) rubber
A-3.07.02	knowledge of substrates such as metal, concrete and wood
A-3.07.03	knowledge of surface preparation products
A-3.07.04	knowledge of installation sequencing of membranes for watershed
A-3.07.05	knowledge of fasteners and sealants
A-3.07.06	knowledge of anti-rotation products
A-3.07.07	knowledge of product compatibilities
A-3.07.08	ability to select and use tools and equipment
A-3.07.09	ability to prepare surface
A-3.07.10	ability to lay down membrane

Sub-task

A-3.08 **Installs flashing.**

NL	NS	PE	NB	QC	ON	MB	SK	AB	BC	NT	YT	NU
NV	yes	yes	NV	NV	yes	yes	yes	yes	yes	NV	NV	NV

Supporting Knowledge & Abilities

A-3.08.01	knowledge of types of flashing materials and thicknesses
A-3.08.02	knowledge of installation considerations such as overlap requirements, expansion and contraction allowances, and sealant location
A-3.08.03	knowledge of building specifications
A-3.08.04	ability to select and use tools and equipment such as tin snips, rivet guns and combination square
A-3.08.05	ability to lay out flashing
A-3.08.06	ability to measure flashing
A-3.08.07	ability to shear and bend flashing
A-3.08.08	ability to recognize and select types of flashing such as drip, sill and parapet
A-3.08.09	ability to identify slope and drainage requirements
A-3.08.10	ability to fasten flashing

Sub-task

A-3.09 **Applies sealants.**

NL	NS	PE	NB	QC	ON	MB	SK	AB	BC	NT	YT	NU
NV	yes	yes	NV	NV	yes	yes	yes	yes	yes	NV	NV	NV

Supporting Knowledge & Abilities

A-3.09.01	knowledge of types of sealants such as tapes, caulking and gaskets
A-3.09.02	knowledge of types of substrates such as wood, concrete and metal
A-3.09.03	knowledge of product compatibility
A-3.09.04	knowledge of sealing methods such as dry, wet and wet/dry
A-3.09.05	knowledge of primers
A-3.09.06	knowledge of building codes
A-3.09.07	knowledge of amount of sealant required
A-3.09.08	ability to select and use tools and equipment

A-3.09.09	ability to prepare surface
A-3.09.10	ability to select sealant and backing rods
A-3.09.11	ability to tool sealant
A-3.09.12	ability to recognize variations and types of glazing tapes, sealants and gaskets
A-3.09.13	ability to recognize sealant applications

Sub-task

A-3.10 Maintains safe work environment.

NL	NS	PE	NB	QC	ON	MB	SK	AB	BC	NT	YT	NU
NV	yes	yes	NV	NV	yes	yes	yes	yes	yes	NV	NV	NV

Supporting Knowledge & Abilities

A-3.10.01	knowledge of WHMIS
A-3.10.02	knowledge of workers' rights and responsibilities
A-3.10.03	knowledge of company safety policies and procedures
A-3.10.04	knowledge of site-specific fire safety and work permit procedures
A-3.10.05	knowledge of emergency procedures
A-3.10.06	knowledge of communication requirements
A-3.10.07	ability to locate and interpret safety documentation such as MSDS and WHMIS labels
A-3.10.08	ability to locate on-site first aid stations and equipment
A-3.10.09	ability to recognize and report potential hazards
A-3.10.10	ability to perform housekeeping practices

Trends

There is an increase in the use of structural silicone systems (SSG). Panelized systems are becoming more common, resulting in quicker installation and increased use of cranes.

Due to larger window and door systems, lifting equipment is becoming more in demand and is replacing scaffolding on many jobsites. This results in more efficient installation.

More stringent building codes lead to a greater variety of specialty materials.

There is a higher demand for skylights because of the added natural light they provide.

There is an increase in the use of all-glass, sliding and automatic doors.

Related Components (including, but not limited to)

Curtain walls: spigots (shear blocks), tubes, pressure plates, caps, anchors, corner blocks, weather-stripping, shear blocks, glass, spandrel glass, insulated back pans, expansion sleeves, door adapters, gaskets, special add-ons (granite, terra cotta and architectural panels).

Storefronts: fin tubes, flush glaze, brackets, ribbons.

Window systems: thermal break, expansion joints.

Skylights and sloped glazing systems: hip rafters, purlins, rafters, anchors, pressure plates, caps, splice plates, tapes, gaskets, flashings, membranes, expansion sleeves, gutters.

Entrance systems: closers, flush bolts, door handles, pivots, hinges, hold opens, panic hardware (exit devices), kick plates, thresholds, locksets, electric strikes, automatic operators.

Tools and Equipment

See Appendix A.

Context

Glaziers are responsible for the fabrication and installation of window and door systems for commercial projects. Fabrication takes place in the fabrication shop or on site prior to installation.

Task 4 Fabricates commercial window and door systems.

Sub-task

B-4.01 Fabricates curtain walls.

NL	NS	PE	NB	QC	ON	MB	SK	AB	BC	NT	YT	NU
NV	yes	yes	NV	NV	yes	yes	yes	yes	yes	NV	NV	NV

Supporting Knowledge & Abilities

B-4.01.01	knowledge of types of curtain walls such as standard, two-sided and four-sided SSG
B-4.01.02	knowledge of installation procedures such as stick-built and pre-glazed unitized
B-4.01.03	knowledge of sizes of material
B-4.01.04	knowledge of fabrication sheets
B-4.01.05	knowledge of components such as spigots, anchors, pressure plates, caps and corner blocks
B-4.01.06	knowledge of location of weep holes, vent ports and anchors
B-4.01.07	knowledge of types of sealants, gaskets and tapes
B-4.01.08	knowledge of manufacturers' specifications related to expansion and contraction
B-4.01.09	ability to create and use jigs and templates
B-4.01.10	ability to cut curtain wall parts and components from stock length and prefabricated materials
B-4.01.11	ability to locate setting blocks for stick built and pre-glazed unitized units
B-4.01.12	ability to measure frame components
B-4.01.13	ability to select and use tools and equipment such as copy routers, mitre saws, screw guns and drills
B-4.01.14	ability to square frames
B-4.01.15	ability to install glass into frames
B-4.01.16	ability to install pressure plates, sealants and screws to secure glass to frames
B-4.01.17	ability to assemble and seal frames and components
B-4.01.18	ability to prepare products for shipping

Sub-task

B-4.02 **Fabricates storefronts.**

NL	NS	PE	NB	QC	ON	MB	SK	AB	BC	NT	YT	NU
NV	yes	yes	NV	NV	yes	yes	yes	yes	yes	NV	NV	NV

Supporting Knowledge & Abilities

B-4.02.01	knowledge of types of materials used such as flush glaze, ribbons and fin tubes
B-4.02.02	knowledge of storefront applications such as heavy-duty and light-duty
B-4.02.03	knowledge of types of hardware
B-4.02.04	knowledge of amount of pre-assembly done in the shop
B-4.02.05	knowledge of manufacturers' specifications for fabrication
B-4.02.06	ability to select and use tools and equipment
B-4.02.07	ability to cut and assemble final product
B-4.02.08	ability to cut, fit and install snap-in stops
B-4.02.09	ability to prepare products for shipping

Sub-task

B-4.03 **Fabricates window systems.**

NL	NS	PE	NB	QC	ON	MB	SK	AB	BC	NT	YT	NU
NV	yes	yes	NV	NV	yes	yes	yes	yes	yes	NV	NV	NV

Supporting Knowledge & Abilities

B-4.03.01	knowledge of types of window systems such as strip (ribbon) and punched opening windows
B-4.03.02	knowledge of types of operable windows such as casement, awning, hopper and tilt-turn
B-4.03.03	knowledge of amount of pre-assembly done in the shop
B-4.03.04	knowledge of components such as spigots, hardware and glazing
B-4.03.05	knowledge of weather seal materials such as tapes, sealants and gaskets
B-4.03.06	knowledge of thermal breaks
B-4.03.07	knowledge of types of finishes such as anodized, painted and powder-coated
B-4.03.08	knowledge of types of sealants

B-4.03.09	knowledge of methods of assembly such as pre-glazed or site-glazed
B-4.03.10	ability to measure and cut material
B-4.03.11	ability to create and use jigs and templates
B-4.03.12	ability to lay out mullions and hardware
B-4.03.13	ability to pre-drill for assembly using tools such as drill press and hand drill
B-4.03.14	ability to assemble components such as jambs, headers and sills

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Sub-task

B-4.04 Fabricates skylights and sloped glazing systems.

NL	NS	PE	NB	QC	ON	MB	SK	AB	BC	NT	YT	NU
NV	yes	yes	NV	NV	yes	yes	yes	yes	yes	NV	NV	NV

Supporting Knowledge & Abilities

B-4.04.01	knowledge of types of skylights such as ridge, hip, pyramid and barrel-vault
B-4.04.02	knowledge of components such as rafters, purlins, spigots, splice plates, pressure plates, gutters and sleeve anchors
B-4.04.03	knowledge of weather seal materials such as tapes, sealants and gaskets
B-4.04.04	knowledge of types of flashings such as primary and secondary
B-4.04.05	knowledge of types of anchors such as sleeve, welded and bolted
B-4.04.06	knowledge of sloped glazing construction techniques
B-4.04.07	knowledge of types of membranes such as EPDM rubber, peel-and-stick and galvanized
B-4.04.08	knowledge of amount of pre-assembly done in the shop
B-4.04.09	knowledge of requirements for steel-aluminium separation such as shims and bituminous paint
B-4.04.10	knowledge of types of sealant applications
B-4.04.11	ability to select and use tools and equipment such as protractors/sliding T-bevels, compound miter saws and drills
B-4.04.12	ability to determine required degree of slope
B-4.04.13	ability to notch, cut and assemble components
B-4.04.14	ability to prepare skylights and sloped glazing systems for flashings and roof membrane tie-ins

Sub-task

4.05 Fabricates entrance systems.

NL	NS	PE	NB	QC	ON	MB	SK	AB	BC	NT	YT	NU
NV	yes	yes	NV	NV	yes	yes	yes	yes	yes	NV	NV	NV

Supporting Knowledge & Abilities

B-4.05.01	knowledge of types of entrance systems such as swing, bifold, revolving and sliding
B-4.05.02	knowledge of types of automatic door operators
B-4.05.03	knowledge of types of hardware
B-4.05.04	knowledge of manufacturers' specifications
B-4.05.05	knowledge of gaskets used for entrance systems
B-4.05.06	knowledge of types of framing material such as flush glaze and curtain wall with door adapter
B-4.05.07	ability to create and use templates to prepare doors for hardware
B-4.05.08	ability to assemble components such as handles, closers, thresholds, flush bolts, locksets, electric strikes and panic hardware (exit devices)
B-4.05.09	ability to pre-glaze entrance systems prior to installation
B-4.05.10	ability to prepare frame and door for hinges and pivots
B-4.05.11	ability to fasten entrance system components

Task 5 Installs commercial window and door systems.

Sub-task

B-5.01 **Lays out commercial window and door systems.**

NL	NS	PE	NB	QC	ON	MB	SK	AB	BC	NT	YT	NU
NV	yes	yes	NV	NV	yes	yes	yes	yes	yes	NV	NV	NV

Supporting Knowledge & Abilities

B-5.01.01	knowledge of location of roof and wall structural members
B-5.01.02	knowledge of types of doors such as swing, bifold, revolving and sliding
B-5.01.03	ability to select and use tools and equipment such as laser level, measuring tape, chalk line, square and plumb bob
B-5.01.04	ability to locate benchmarks and gridlines
B-5.01.05	ability to lay out anchoring system
B-5.01.06	ability to transfer lines from floor to ceiling and roof in order to coordinate with other trades

Sub-task

B-5.02 **Installs curtain wall systems.**

NL	NS	PE	NB	QC	ON	MB	SK	AB	BC	NT	YT	NU
NV	yes	yes	NV	NV	yes	yes	yes	yes	yes	NV	NV	NV

Supporting Knowledge & Abilities

B-5.02.01	knowledge of types of curtain walls such as stick-built and pre-glazed unitized systems
B-5.02.02	knowledge of types of wall finish such as brick, precast, aluminium panels and stucco
B-5.02.03	knowledge of curtain wall components such as pressure plates, caps, anchors and shear blocks
B-5.02.04	knowledge of anchoring systems such as starter tracks and welded anchors
B-5.02.05	knowledge of assembly done on-site
B-5.02.06	knowledge of hoisting requirements for glass and frames

B-5.02.07	knowledge of primers for peel-and-stick membrane, polyurethane and silicone
B-5.02.08	knowledge of types of caulking such as butyl, silicone and polyurethane
B-5.02.09	knowledge of types of glazing compounds such as gaskets, tapes and sealants
B-5.02.10	knowledge of components that must be welded
B-5.02.11	ability to install starter tracks and welded anchors according to layout
B-5.02.12	ability to install aluminium panel siding
B-5.02.13	ability to modify curtain walls in final location
B-5.02.14	ability to install corner blocks for stick-built systems
B-5.02.15	ability to level and plumb frames
B-5.02.16	ability to select and use tools and equipment such as builder's levels, C-clamps, and wrenches
B-5.02.17	ability to secure frames using methods such as bolting, and screwing with self-drilling screws
B-5.02.18	ability to finish frames and glass with pressure plates, caps and sealants

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Sub-task

B-5.03 **Installs storefront systems.**

NL	NS	PE	NB	QC	ON	MB	SK	AB	BC	NT	YT	NU
NV	yes	yes	NV	NV	yes	yes	yes	yes	yes	NV	NV	NV

Supporting Knowledge & Abilities

B-5.03.01	knowledge of storefront applications
B-5.03.02	knowledge of amount of assembly done on-site
B-5.03.03	knowledge of types of hardware
B-5.03.04	knowledge of manufacturers' specifications for installation
B-5.03.05	knowledge of types of glazing gaskets such as vinyl and rubber
B-5.03.06	ability to select and use tools and equipment such as hammer drills, high speed drills and screw guns
B-5.03.07	ability to modify storefront in final location
B-5.03.08	ability to secure frames in place using fasteners such as screws and plugs
B-5.03.09	ability to plumb, level and square frames

B-5.03.10	ability to perform site glazing
B-5.03.11	ability to install glazing stops and gaskets

Sub-task

B-5.04 **Installs window systems.**

NL	NS	PE	NB	QC	ON	MB	SK	AB	BC	NT	YT	NU
NV	yes	yes	NV	NV	yes	yes	yes	yes	yes	NV	NV	NV

Supporting Knowledge & Abilities

B-5.04.01	knowledge of types of window systems such as strip (ribbon) and punched opening windows
B-5.04.02	knowledge of types of operable windows such as casement, awning, hopper and tilt-turn
B-5.04.03	knowledge of weather seal materials such as tapes, and sealants
B-5.04.04	knowledge of methods of assembly such as pre-glazed or site-glazed
B-5.04.05	ability to select and use tools and equipment
B-5.04.06	ability to assemble components such as headers and sills
B-5.04.07	ability to install setting blocks when glazing windows on-site
B-5.04.08	ability to modify window systems in final location
B-5.04.09	ability to plumb, level and square window systems using shims
B-5.04.10	ability to secure window systems using screws, plugs and anchors
B-5.04.11	ability to install on-site glazing
B-5.04.12	ability to insulate and seal frame
B-5.04.13	ability to verify operation of windows

Sub-task

B-5.05 Installs skylights and sloped glazing systems.

NL	NS	PE	NB	QC	ON	MB	SK	AB	BC	NT	YT	NU
NV	yes	yes	NV	NV	yes	yes	yes	yes	yes	NV	NV	NV

Supporting Knowledge & Abilities

B-5.05.01	knowledge of types of skylights such as pyramid, barrel vault and ridge
B-5.05.02	knowledge of components such as rafters, purlins, splice plates, pressure plates, gutters and sleeve anchors
B-5.05.03	knowledge of weather seal materials such as tapes, sealants, rubber and gaskets
B-5.05.04	knowledge of types of flashings such as primary and secondary
B-5.05.05	knowledge of types of anchors such as sleeve, welded and bolted
B-5.05.06	knowledge of sloped glazing construction techniques
B-5.05.07	knowledge of types of membranes such as EPDM rubber, peel-and-stick and galvanized
B-5.05.08	knowledge of types of sealant applications
B-5.05.09	knowledge of location and placement of anchors for skylights and sloped glazings
B-5.05.10	knowledge of placement of purlins
B-5.05.11	knowledge of components that must be welded
B-5.05.12	ability to select and use tools and equipment
B-5.05.13	ability to confirm measurements for skylights and sloped glazing
B-5.05.14	ability to place and assemble condensation gutters and frame members
B-5.05.15	ability to square skylights and sloped glazing
B-5.05.16	ability to modify skylights in final location
B-5.05.17	ability to secure anchors using fasteners such as bolts and tek screws
B-5.05.18	ability to install insulation between primary and secondary flashing
B-5.05.19	ability to install on-site glazing, pressure plates and caps

Sub-task

B-5.06 **Installs entrance systems.**

NL	NS	PE	NB	QC	ON	MB	SK	AB	BC	NT	YT	NU
NV	yes	yes	NV	NV	yes	yes	yes	yes	yes	NV	NV	NV

Supporting Knowledge & Abilities

B-5.06.01	knowledge of types of entrance systems such as swing, bifold, revolving and sliding
B-5.06.02	knowledge of types of automatic door operators
B-5.06.03	knowledge of manufacturers' specifications for installation
B-5.06.04	knowledge of types of framing materials such as flush glaze and curtain wall with door adapter
B-5.06.05	ability to position entrance system according to layout
B-5.06.06	ability to plumb, level and square entrance system
B-5.06.07	ability to run low voltage electrical wiring through frame
B-5.06.08	ability to fasten components to rough opening
B-5.06.09	ability to install hardware such as handles, closers, thresholds, flush bolts, locksets, electric strikes and panic hardware (exit devices)

BLOCK C — RESIDENTIAL WINDOW AND DOOR SYSTEMS

Trends	There is an increase in the use of vinyl windows and fibreglass windows, replacing aluminium and wood frames. There is also a trend toward the use of hybrid windows, with a polyvinyl chloride (PVC) interior and an aluminium exterior.
Related Components (including, but not limited to)	Windows, doors, glass, framing units, hardware, fasteners, sealants, trims, flashings, weather-stripping, membranes.
Tools and Equipment	See Appendix A.
Context	Glaziers install window and door systems on residential construction sites, as well as replace used and outdated systems. Window and door systems are delivered pre-assembled. Some systems require glazing, frame and hardware assembly on-site due to size, weight and manufacturers' specifications.

Task 6 — Installs residential window systems.

Sub-task

C-6.01 **Lays out residential window systems.**

NL	NS	PE	NB	QC	ON	MB	SK	AB	BC	NT	YT	NU
NV	no	yes	NV	NV	yes	yes	yes	yes	yes	NV	NV	NV

Supporting Knowledge & Abilities

C-6.01.01	knowledge of types of window systems
C-6.01.02	knowledge of building codes
C-6.01.03	ability to select and use tools and equipment

C-6.01.04	ability to remove window systems
C-6.01.05	ability to measure and verify rough opening

Sub-task

C-6.02 **Sets windows in openings.**

NL	NS	PE	NB	QC	ON	MB	SK	AB	BC	NT	YT	NU
NV	no	yes	NV	NV	yes	yes	yes	yes	yes	NV	NV	NV

Supporting Knowledge & Abilities

C-6.02.01	knowledge of types of windows such as bays, bows, inserts, awning, casement, sliding and tilt-turn
C-6.02.02	knowledge of installation procedures
C-6.02.03	knowledge of types of sealants and insulation
C-6.02.04	knowledge of types of flashings and membranes
C-6.02.05	knowledge of wall construction
C-6.02.06	knowledge of building codes
C-6.02.07	ability to select and use tools and equipment such as level, hammer, screw gun and pry bar
C-6.02.08	ability to level and plumb windows and frames
C-6.02.09	ability to secure windows
C-6.02.10	ability to verify the operation of windows

Sub-task

C-6.03 **Glazes windows.**

NL	NS	PE	NB	QC	ON	MB	SK	AB	BC	NT	YT	NU
NV	yes	yes	NV	NV	yes	yes	yes	yes	yes	NV	NV	yes

Supporting Knowledge & Abilities

C-6.03.01	knowledge of installation procedures
C-6.03.02	knowledge of sealants, adhesives and gaskets and their compatibility to sealed units
C-6.03.03	knowledge of allowable tolerances

C-6.03.04	ability to select and use tools and equipment such as plastic or rubber mallets, glazing bars, fiber sticks and glass wedges
C-6.03.05	ability to inspect glass and components
C-6.03.06	ability to secure glazing stops
C-6.03.07	ability to apply edge blocking

Task 7 Installs residential door systems.

Sub-task

C-7.01 Lays out residential door systems.

NL	NS	PE	NB	QC	ON	MB	SK	AB	BC	NT	YT	NU
NV	no	no	NV	NV	yes	yes	yes	yes	yes	NV	NV	NV

Supporting Knowledge & Abilities

C-7.01.01	knowledge of types of door systems
C-7.01.02	knowledge of building codes
C-7.01.03	ability to select and use tools and equipment
C-7.01.04	ability to remove door systems
C-7.01.05	ability to determine door swing
C-7.01.06	ability to measure and verify rough opening

Sub-task

C-7.02 Assembles residential door frames.

NL	NS	PE	NB	QC	ON	MB	SK	AB	BC	NT	YT	NU
NV	no	no	NV	NV	yes	yes	yes	yes	yes	NV	NV	NV

Supporting Knowledge & Abilities

C-7.02.01	knowledge of types of door frames
C-7.02.02	knowledge of types of door frame materials such as PVC, metal, composite and fiberglass
C-7.02.03	knowledge of styles of door frames such as French, patio and swing

C-7.02.04	knowledge of fastening methods such as screwed and nailed
C-7.02.05	knowledge of types of sealants and weather-stripping
C-7.02.06	knowledge of types of hardware such as strike plates and hinges
C-7.02.07	knowledge of door frame components such as nailing flanges, brickmolds and thresholds
C-7.02.08	ability to select and use tools and equipment
C-7.02.09	ability to create and use jigs and templates
C-7.02.10	ability to lay out and square door frames
C-7.02.11	ability to fasten and secure door frame components

Sub-task

C-7.03 Sets residential doors and frames.

NL	NS	PE	NB	QC	ON	MB	SK	AB	BC	NT	YT	NU
NV	no	no	NV	NV	yes	yes	yes	yes	yes	NV	NV	NV

Supporting Knowledge & Abilities

C-7.03.01	knowledge of types of doors and frames
C-7.03.02	knowledge of sealants and insulation
C-7.03.03	knowledge of installation procedures
C-7.03.04	knowledge of air and vapour barriers
C-7.03.05	ability to select and use tools and equipment
C-7.03.06	ability to level and plumb doors and frames
C-7.03.07	ability to fasten doors and frames
C-7.03.08	ability to install trims
C-7.03.09	ability to verify the operation of doors

Sub-task

C-7.04 Installs residential door hardware.

NL	NS	PE	NB	QC	ON	MB	SK	AB	BC	NT	YT	NU
NV	no	yes	NV	NV	yes	yes	yes	yes	yes	NV	NV	NV

Supporting Knowledge & Abilities

C-7.04.01	knowledge of types of hardware such as strike plates, hinges and locksets
C-7.04.02	knowledge of building codes
C-7.04.03	ability to select and use tools and equipment
C-7.04.04	ability to use jigs and templates
C-7.04.05	ability to fasten hardware
C-7.04.06	ability to verify operation of hardware

Sub-task

C-7.05 Glazes residential doors.

NL	NS	PE	NB	QC	ON	MB	SK	AB	BC	NT	YT	NU
NV	yes	yes	NV	NV	yes	yes	yes	yes	yes	NV	NV	NV

Supporting Knowledge & Abilities

C-7.05.01	knowledge of installation procedures
C-7.05.02	knowledge of sealants, adhesives and gaskets and their compatibility to sealed units
C-7.05.03	knowledge of allowable tolerances
C-7.05.04	ability to select and use tools and equipment such as plastic or rubber mallets, glazing bars, fiber sticks and glass wedges
C-7.05.05	ability to inspect glass and components
C-7.05.06	ability to secure glazing stops
C-7.05.07	ability to apply edge blocking when required

BLOCK D SPECIALTY GLASS AND PRODUCTS

Trends	More pattern glass is being used. There is a greater use of fire-resistant glass, due to its heat resistance and clarity, replacing Georgian polish wire (GPW). The use of low-iron glass is increasing in display cases due to its viewing clarity. There is a higher demand for custom-made shower enclosures. Nano-fusion treatment is becoming more widely used. In relation to LEED building design, the incorporation of sun shades improves heating, ventilation and air conditioning (HVAC) requirements
Related Components (including, but not limited to)	**Glass**: laminate, pattern, mirrors, sandblast, multicoloured, curved, fireproof, low-iron. **Hardware**: fasteners, sealants, anchors, clips, u-channel, gaskets, patch fittings, base plates, sleeve anchors, weather-stripping.
Tools and Equipment	See Appendix A.
Context	Glaziers prepare and install specialty products that include items such as balustrades, shower enclosures, spider wall systems, dividing walls, stained glass windows, glass in sport complexes, smoke baffles, mirrors, display cases, sneeze guards and glass floors. Glass used on vehicles (cars, trucks, vans, heavy duty equipment, marine crafts, etc.) may be repaired or replaced by glaziers.

Task 8 Fabricates and installs specialty glass and products.

Sub-task

D-8.01 Lays out specialty glass and products.

NL	NS	PE	NB	QC	ON	MB	SK	AB	BC	NT	YT	NU
NV	yes	yes	NV	NV	yes	yes	yes	yes	yes	NV	NV	NV

Supporting Knowledge & Abilities

D-8.01.01	knowledge of types of glass such as curved, multicoloured and multilaminate
D-8.01.02	knowledge of types of specialty products such as shower doors, spider glass walls and balustrades
D-8.01.03	knowledge of anchoring systems
D-8.01.04	knowledge of types of hardware and patch fittings
D-8.01.05	knowledge of types of sealants
D-8.01.06	ability to select and use tools and equipment
D-8.01.07	ability to create and use templates
D-8.01.08	ability to measure openings and products
D-8.01.09	ability to identify benchmarks and gridlines

Sub-task

D-8.02 Assembles specialty glass, products and hardware.

NL	NS	PE	NB	QC	ON	MB	SK	AB	BC	NT	YT	NU
NV	yes	yes	NV	NV	yes	yes	yes	yes	yes	NV	NV	NV

Supporting Knowledge & Abilities

D-8.02.01	knowledge of types of glass such as mirror, fire-resistant and high-performance
D-8.02.02	knowledge of characteristics, properties and applications of specialty glass
D-8.02.03	knowledge of types of specialty products such as shower doors, spider glass walls, sun shades and balustrades
D-8.02.04	knowledge of specialty product materials such as plastic, wood, vinyl, aluminium, stainless steel and lead

D-8.02.05	knowledge of assembly procedures
D-8.02.06	knowledge of manufacturers' specifications
D-8.02.07	knowledge of types of fasteners such as screws, gussets, clips, spigots and anchors
D-8.02.08	knowledge of types of hardware such as patch fittings, closers and pivots
D-8.02.09	knowledge of moldings such as base shoes and U-channels
D-8.02.10	knowledge of types of sealants, adhesives and quick set cement
D-8.02.11	knowledge of types of gaskets such as vinyl, rubber and weather-stripping
D-8.02.12	ability to select and use tools and equipment
D-8.02.13	ability to measure and cut materials
D-8.02.14	ability to level and square materials
D-8.02.15	ability to fasten materials
D-8.02.16	ability to torque patch fittings and cables to accurate tension

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Sub-task

D-8.03 Installs specialty glass and products.

NL	NS	PE	NB	QC	ON	MB	SK	AB	BC	NT	YT	NU
NV	yes	yes	NV	NV	yes	yes	yes	yes	yes	NV	NV	NV

Supporting Knowledge & Abilities

D-8.03.01	knowledge of types of glass such as mirror, fire-resistant and high-performance
D-8.03.02	knowledge of characteristics, properties and applications of specialty glass
D-8.03.03	knowledge of types of specialty products such as shower doors, spider glass walls, sun shades and balustrades
D-8.03.04	knowledge of specialty product materials such as plastic, wood, vinyl, aluminium, stainless steel and lead
D-8.03.05	knowledge of types of fasteners
D-8.03.06	knowledge of types of hardware
D-8.03.07	knowledge of types of sealants
D-8.03.08	knowledge of installation procedures
D-8.03.09	ability to select and use tools and equipment such as laser levels, drills and screw guns
D-8.03.10	ability to remove existing specialty products
D-8.03.11	ability to fasten specialty products to openings

D-8.03.12	ability to level and plumb
D-8.03.13	ability to install hardware
D-8.03.14	ability to install anchoring systems
D-8.03.15	ability to cut and fit materials
D-8.03.16	ability to clad and flash
D-8.03.17	ability to determine angles of glass and frames
D-8.03.18	ability to verify operation of specialty glass and products

Task 9 Installs glass systems on vehicles.

Sub-task

D-9.01 Replaces glass on vehicles.

NL	NS	PE	NB	QC	ON	MB	SK	AB	BC	NT	YT	NU
NV	no	yes	NV	NV	yes	yes	yes	yes	yes	NV	NV	NV

Supporting Knowledge & Abilities

D-9.01.01	knowledge of types of glass such as laminated and tempered
D-9.01.02	knowledge of vehicle types such as cars, trucks, vans, heavy duty equipment and marine crafts
D-9.01.03	knowledge of glass codes
D-9.01.04	knowledge of types of sealants such as urethane and gaskets
D-9.01.05	knowledge of types of primers such as one-part and two-part
D-9.01.06	knowledge of removal and installation procedures
D-9.01.07	ability to select and use tools and equipment
D-9.01.08	ability to create and use templates
D-9.01.09	ability to measure and cut glass
D-9.01.10	ability to remove and replace vehicle parts such as wipers, cowls and trims
D-9.01.11	ability to disconnect batteries
D-9.01.12	ability to perform air and water test

Sub-task

D-9.02 Repairs laminated glass.

NL	NS	PE	NB	QC	ON	MB	SK	AB	BC	NT	YT	NU
NV	no	yes	NV	NV	yes	yes	yes	yes	yes	NV	NV	NV

Supporting Knowledge & Abilities

D-9.02.01	knowledge of types of windshields and laminated glass
D-9.02.02	knowledge of sunroofs
D-9.02.03	knowledge of manufacturers' specifications
D-9.02.04	knowledge of repair procedures
D-9.02.05	knowledge of types of sealants such as urethane and gaskets
D-9.02.06	knowledge of primers
D-9.02.07	ability to select and use tools and equipment such as heat sources and suction cups
D-9.02.08	ability to heat glass
D-9.02.09	ability to prime metal frame
D-9.02.10	ability to perform air and water tests
D-9.02.11	ability to remove and replace trims and rubber gaskets

Trends

In door servicing, instead of replacing entire offset pivots, continuous hinges are being installed.

Improved weep systems in window systems require less servicing.

Related Components

All components apply.

Tools and Equipment

See Appendix A.

Context

Glaziers service broken or damaged glass doors, windows and specialty products in commercial and residential sectors. They work on both the glass and their structure, diagnosing, repairing and replacing components as needed.

Task 10 Services commercial window and door systems.

Sub-task

E-10.01 **Assesses service requirements for commercial window and door systems.**

NL	NS	PE	NB	QC	ON	MB	SK	AB	BC	NT	YT	NU
NV	yes	yes	NV	NV	yes	yes	yes	yes	yes	NV	NV	NV

Supporting Knowledge & Abilities

E-10.01.01	knowledge of products, their functions and characteristics
E-10.01.02	knowledge of product components such as hinges and pivots
E-10.01.03	knowledge of access requirements
E-10.01.04	knowledge of jurisdictional rules and regulations such as building codes and fire codes
E-10.01.05	knowledge of potential problems with window and door systems
E-10.01.06	ability to identify problems

E-10.01.07	ability to select and use tools and equipment
E-10.01.08	ability to disassemble products
E-10.01.09	ability to identify required upgrades
E-10.01.10	ability to determine replacement parts

Sub-task

E-10.02 **Assembles parts and materials for commercial window and door systems.**

NL	NS	PE	NB	QC	ON	MB	SK	AB	BC	NT	YT	NU
NV	yes	yes	NV	NV	yes	yes	yes	yes	yes	NV	NV	NV

Supporting Knowledge & Abilities

E-10.02.01	knowledge of types of window and door systems
E-10.02.02	knowledge of manufacturers' specifications
E-10.02.03	knowledge of assembly sequence
E-10.02.04	knowledge of types of components such as frames, operating hardware and sealants
E-10.02.05	knowledge of function of window and door systems
E-10.02.06	knowledge of sealant compatibility
E-10.02.07	ability to select and use tools and equipment
E-10.02.08	ability to fasten components
E-10.02.09	ability to verify operation of commercial window and door systems

Sub-task

E-10.03 Repairs commercial window and door systems.

NL	NS	PE	NB	QC	ON	MB	SK	AB	BC	NT	YT	NU
NV	yes	yes	NV	NV	yes	yes	yes	yes	yes	NV	NV	NV

Supporting Knowledge & Abilities

E-10.03.01	knowledge of types of glass products such as tempered, annealed, high-performance, Georgian polished wire (GPW) and laminated
E-10.03.02	knowledge of application of glass products
E-10.03.03	knowledge of glass product characteristics such as glass and sealed unit thickness
E-10.03.04	knowledge of age of system being repaired
E-10.03.05	knowledge of sealant compatibilities
E-10.03.06	knowledge of working environment
E-10.03.07	ability to select and use tools and equipment
E-10.03.08	ability to remove damaged products
E-10.03.09	ability to recognize hazards associated with handling glass products
E-10.03.10	ability to match products to existing system
E-10.03.11	ability to bring products to existing industry standards
E-10.03.12	ability to dispose of glass products
E-10.03.13	ability to secure openings
E-10.03.14	ability to verify operation of window and door systems

Task 11 Services residential window and door systems.

Sub-task

E-11.01 Assesses service requirements for residential window and door systems.

NL	NS	PE	NB	QC	ON	MB	SK	AB	BC	NT	YT	NU
NV	yes	yes	NV	NV	yes	yes	yes	yes	yes	NV	NV	NV

Supporting Knowledge & Abilities

E-11.01.01	knowledge of products, their functions and characteristics
E-11.01.02	knowledge of product components such as hinges and roto-operators
E-11.01.03	knowledge of access requirements
E-11.01.04	knowledge of jurisdictional rules and regulations such as building codes and fire codes
E-11.01.05	knowledge of potential problems with window and door systems
E-11.01.06	ability to identify problems
E-11.01.07	ability to select tools and equipment
E-11.01.08	ability to disassemble products
E-11.01.09	ability to identify required upgrades
E-11.01.10	ability to determine replacement parts

Sub-task

E-11.02 Assembles parts and materials for residential window and door systems.

NL	NS	PE	NB	QC	ON	MB	SK	AB	BC	NT	YT	NU
NV	yes	yes	NV	NV	yes	yes	yes	yes	yes	NV	NV	NV

Supporting Knowledge & Abilities

E-11.02.01	knowledge of types of window and door systems
E-11.02.02	knowledge of assembly sequence
E-11.02.03	knowledge of manufacturers' specifications
E-11.02.04	knowledge of types of components such as locks, handles and passage sets

E-11.02.05	knowledge of the functions of window and door systems
E-11.02.06	ability to select and use tools and equipment
E-11.02.07	ability to fasten components
E-11.02.08	ability to verify operation of residential window and door systems

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Sub-task

E-11.03 Repairs residential window and door systems.

NL	NS	PE	NB	QC	ON	MB	SK	AB	BC	NT	YT	NU
NV	yes	yes	NV	NV	yes	yes	yes	yes	yes	NV	NV	NV

Supporting Knowledge & Abilities

E-11.03.01	knowledge of types of window and door systems such as casement, awning, hopper, tilt-turn and patio doors
E-11.03.02	knowledge of application of window and door systems
E-11.03.03	knowledge of glass product characteristics such as glass and sealed unit thickness
E-11.03.04	knowledge of age of system being fixed
E-11.03.05	knowledge of sealant compatibilities
E-11.03.06	knowledge of work environment
E-11.03.07	ability to select and use tools and equipment
E-11.03.08	ability to cut and remove damaged products
E-11.03.09	ability to recognize hazards associated with handling glass products
E-11.03.10	ability to match product to existing system
E-11.03.11	ability to bring products to existing industry standards
E-11.03.12	ability to dispose of glass products
E-11.03.13	ability to secure openings
E-11.03.14	ability to repair, replace and fasten hardware
E-11.03.15	ability to verify operation of residential window and door systems

Task 12 Services specialty glass and products.

Sub-task

E-12.01 Assesses service requirements for specialty glass and products.

NL	NS	PE	NB	QC	ON	MB	SK	AB	BC	NT	YT	NU
NV	yes	yes	NV	NV	yes	yes	yes	yes	yes	NV	NV	NV

Supporting Knowledge & Abilities

E-12.01.01	knowledge of specialty glass and products such as mirror walls, balustrades, sun shades and stained glass
E-12.01.02	knowledge of specialty glass characteristics such as insulation value and colour and bullet resistance
E-12.01.03	knowledge of fasteners such as hinges, spider fittings and bolts
E-12.01.04	knowledge of materials used such as polycarbonate and insulated panels
E-12.01.05	knowledge of product-specific assessment procedures
E-12.01.06	knowledge of access requirements
E-12.01.07	knowledge of jurisdictional rules and regulations such as building codes and fire codes
E-12.01.08	knowledge of potential problems with specialty glass and products
E-12.01.09	ability to identify problems such as cracked stained glass and solarium leaks
E-12.01.10	ability to select and use tools and equipment
E-12.01.11	ability to disassemble products
E-12.01.12	ability to identify required upgrades
E-12.01.13	ability to measure glass size according to applications such as for balustrades, smoke baffles and shower doors
E-12.01.14	ability to determine replacement parts

Sub-task

E-12.02 **Assembles specialty glass and products.**

NL	NS	PE	NB	QC	ON	MB	SK	AB	BC	NT	YT	NU
NV	yes	yes	NV	NV	yes	yes	yes	yes	yes	NV	NV	NV

Supporting Knowledge & Abilities

E-12.02.01	knowledge of types of specialty glass and products
E-12.02.02	knowledge of manufacturers' specifications
E-12.02.03	knowledge of types of components such as spider fittings, patch hardware, brackets, sun shades and stand-offs
E-12.02.04	knowledge of types and compatibility of sealants
E-12.02.05	knowledge of the function of specialty glass and products
E-12.02.06	ability to select and use tools and equipment
E-12.02.07	ability to follow product-specific assembly sequence and procedures
E-12.02.08	ability to fasten specialty glass and products

Sub-task

E-12.03 **Repairs specialty glass and products.**

NL	NS	PE	NB	QC	ON	MB	SK	AB	BC	NT	YT	NU
NV	yes	yes	NV	NV	yes	yes	yes	yes	yes	NV	NV	NV

Supporting Knowledge & Abilities

E-12.03.01	knowledge of types of specialty glass and products such as stained glass, bullet resistant glass, laminated glass and back-painted glass
E-12.03.02	knowledge of specialty glass characteristics such as insulation value, colour and bullet resistance
E-12.03.03	knowledge of fasteners such as hinges, spider fittings and bolts
E-12.03.04	knowledge of materials used such as polycarbonate and insulated panels
E-12.03.05	knowledge of application of specialty glass and products
E-12.03.06	knowledge of types and compatibility of sealant
E-12.03.07	knowledge of work environment
E-12.03.08	knowledge of hazards associated with handling glass products
E-12.03.09	ability to select and use tools and equipment

E-12.03.10	ability to remove damaged products
E-12.03.11	ability to bring products to existing industry standards
E-12.03.12	ability to dispose of glass products
E-12.03.13	ability to secure openings
E-12.03.14	ability to verify operation of specialty glass and products

APPENDICES

APPENDIX A TOOLS AND EQUIPMENT

Hand Tools

Allen keys (metric and imperial)
bar clamp
caulking gun
C-clamp
centre punch
chalk line
chisel – cold
chisel – wood
cold knife
core tool
countersinks
dead-blow hammer
drill bits – high speed steel
fibre stick
files – bastard
files – half moon
files – round
glass cutter
glass pliers
glass wedge
glazing bar
hacksaw
hammer
hammer – claw
hand pump suction cups
locking pliers
locking pliers – duck-billed
markers
nail set
nut driver set (imperial and metric)
open end wrenches (imperial and metric)
paint brush
protractor (degree finder)
pry bars
putty knife – bent, straight
ratchet set
rivet tool
mallet (plastic, rubber)
running glass pliers
scoring tool
screwdrivers – flat
screwdrivers – Philips
screwdrivers – Robertson
side cutters
standard pliers
string line
tin snips – straight, left, right
utility knife
vinyl glazing roller
wrench – adjustable

Portable Power Tools

air nibbler
belt sander
chop saw
circular saw
compound mitre saw
cordless drill
electric drill
electric nibbler (shears)
electric router
glass drilling machine and drill bits
grinders
hammer drill
heat gun
jig saw

Portable Power Tools (continued)

portable glass notching saw
power suction cups
reciprocating saw
rotary tool (dremel)
screw gun
wet sander

Stationary Power Tools

air router
air table
air tools (router, drill, pop rivet gun)
argon gas pressure system
automatic bevelling machine
automatic cutting table
automatic diamond wheel edger
automatic glass washing machine
automatic vertical edging machine
band saw
bench grinder
benders
bulk foam insulation applicator
bulk sealant applicator
copy router
drill press
edger
flashing brake
flashing shear
glass cutting table
milling machine (aluminium)
polishing machine
punch press
radial arm saw
sandblaster
sealed unit press
table saw
upright belt sanders

Layout and Measuring Equipment

builder's level
calculator
laser distance measurer
laser level
level
measuring tape
meter stick
plumb bob
site level
sliding T bevel
squares – combination
squares – steel
theodolite
transit level

Specialty Tools

channel and vent tool
door handle release tool
door panel pry bar
glass clamp
lace tool
moulding release tool
offset drill
offset hook tool
plate running pliers
point driver
powered suction cups
retaining nut removal tool
rubber insert tool
self-locking rubber tool

Specialty Tools (continued)

standard suction cups
torque wrench
tripod glass drill
windshield extraction tool
windshield suction cups
windshield wiper removal tool

Scaffolding and Access Equipment

aerial work platforms
articulated boom lift
crane
hydro lifts
ladder jacks
ladders (extension and step)
platform lift
scaffolding (baker, frame, sectional, tubular)
swing stage (suspended scaffolds)

Rigging, Hoisting and Lifting Equipment

chain falls
chains
crane
fork lift
gator dolly
glass dolly
pallet jacks
power cups
ropes (fibre and synthetic)
shackles
skip (elevator)
slings
suction cups
winches

Personal Protective Equipment

aprons
chaps
ear protection
eye wash station
fire extinguishers
fall arrest equipment
first aid kit
gloves
hard hat
knee pads
respirator
rubber gloves
safety footwear
safety glasses
safety vest gauntlets

APPENDIX B GLOSSARY

adhesive	substance used to adhere one material to another
anchor	bracket made of aluminium or steel and used to fasten aluminium frames to an adjoining structure
arris	type of edge work, where the edge of the glass is ground back approximately 1/16th of an inch at an angle
awning (window)	window that is hinged at the top and swings out
bevel(led)	type of edge work, where the edge of the glass is ground back from 1/2 to 1 inch at an angle and polished
cap	outside finish of a curtain wall frame; also called a "snap cover"
casement (window)	window that is hinged at the side and swings out
curtain wall	non-load-bearing wall constructed of aluminium and glass or other panelized material and anchored to the building structure
edge treatment	process of sanding or grinding the cut edge of glass to any of the following finishes: arris, bevel, polish, mitre and ground
fabricate	construct support structures using aluminium extrusions both in the controlled shop environment and on site
flashing	thin sheet of metal, formed to a specific shape used for cosmetic and watershed purposes
gasket	preformed rubber, silicone or vinyl used in the glazing industry
glaze	installing glass
hopper (window)	window that is hinged at the bottom and swings in
laminated glass	glass that has been layered (laminated) at the factory with polyvinyl butyral between the layer.
plumb	*adjective:* perpendicular to level *verb:* install something perpendicular to level
polished	type of edge work performed after the glass is ground to smooth the edge

prefabricated	preassembled components
pre-glazed	window or door frame that has the glass installed in it before final installation of the frame takes place
pressure plate	screw-applied glass stop on curtain wall
rough opening	opening into which a window or door frame is installed (wood, brick, steel)
sealant	substance applied to a surface to make it impervious or resistant to air, water and dirt
setting block	block made of rubber, neoprene, EPDM, or silicone and used to position and protect glass in a frame
shear block	bracket made of aluminium or steel and used to fasten horizontal frame members to vertical frame members
skylight	any overhead glazing
spandrel	a panel that covers the floor slabs and columns on the exterior of a building between window; also known as "non-vision" windows
specifications	written details of project and application descriptions
spigot	aluminium extruded bracket used to attach frame components together
stock length	standard size length of an aluminium extrusion
stop	removable piece of material that holds glass in place (metal, vinyl, wood or rubber).
vehicle	any form of conveyance or transportation (car, plane, boat, heavy duty machinery, etc.)

APPENDIX C — ACRONYMS

COR	Certificate of Recognition
EPDM	Ethylene propylene diene monomer
GPW	Georgian polish wire
LEED	Leadership in Energy and Environmental Design
MSDS	Material Safety Data Sheet
OH&S	Occupational Health and Safety
PPE	Personal protective equipment
PVC	Polyvinyl chloride
SSG	Structural Silicone Glazing
WHMIS	Workplace Hazardous Material Information System

APPENDIX D — BLOCK AND TASK WEIGHTING

BLOCK A OCCUPATIONAL SKILLS

	NL	NS	PE	NB	QC	ON	MB	SK	AB	BC	NT	YT	NU	National Average
%	NV	12	10	NV	NV	15	10	20	15	10	NV	NV	NV	13%

Task 1 Uses and maintains tools and equipment.

	NL	NS	PE	NB	QC	ON	MB	SK	AB	BC	NT	YT	NU	
%	NV	20	50	NV	NV	30	30	25	20	30	NV	NV	NV	29%

Task 2 Organizes work.

	NL	NS	PE	NB	QC	ON	MB	SK	AB	BC	NT	YT	NU	
%	NV	45	20	NV	NV	30	40	25	10	30	NV	NV	NV	29%

Task 3 Performs routine activities.

	NL	NS	PE	NB	QC	ON	MB	SK	AB	BC	NT	YT	NU	
%	NV	35	30	NV	NV	40	30	50	70	40	NV	NV	NV	42%

BLOCK B COMMERCIAL WINDOW AND DOOR SYSTEMS

	NL	NS	PE	NB	QC	ON	MB	SK	AB	BC	NT	YT	NU	National Average
%	NV	37	40	NV	NV	40	35	25	35	40	NV	NV	NV	36%

Task 4 Fabricates commercial window and door systems.

	NL	NS	PE	NB	QC	ON	MB	SK	AB	BC	NT	YT	NU	
%	NV	41	50	NV	NV	30	40	50	30	45	NV	NV	NV	41%

Task 5 Installs commercial window and door systems.

	NL	NS	PE	NB	QC	ON	MB	SK	AB	BC	NT	YT	NU	
%	NV	59	50	NV	NV	70	60	50	70	55	NV	NV	NV	59%

BLOCK C RESIDENTIAL WINDOW AND DOOR SYSTEMS

	NL	NS	PE	NB	QC	ON	MB	SK	AB	BC	NT	YT	NU	National Average
%	NV	13	20	NV	NV	10	20	25	10	10	NV	NV	NV	16%

Task 6 Installs residential window systems.

	NL	NS	PE	NB	QC	ON	MB	SK	AB	BC	NT	YT	NU	
%	NV	45	50	NV	NV	60	50	75	80	50	NV	NV	NV	59%

Task 7 Installs residential door systems.

	NL	NS	PE	NB	QC	ON	MB	SK	AB	BC	NT	YT	NU	
%	NV	55	50	NV	NV	40	50	25	20	50	NV	NV	NV	41%

BLOCK D SPECIALTY GLASS AND PRODUCTS

	NL	NS	PE	NB	QC	ON	MB	SK	AB	BC	NT	YT	NU	National Average
%	NV	17	20	NV	NV	15	10	10	20	20	NV	NV	NV	16%

Task 8 Fabricates and installs specialty glass and products.

	NL	NS	PE	NB	QC	ON	MB	SK	AB	BC	NT	YT	NU	
%	NV	100	80	NV	NV	90	75	75	70	85	NV	NV	NV	82%

Task 9 Installs glass systems on vehicles.

	NL	NS	PE	NB	QC	ON	MB	SK	AB	BC	NT	YT	NU	
%	NV	0	20	NV	NV	10	25	25	30	15	NV	NV	NV	18%

BLOCK E SERVICING

	NL	NS	PE	NB	QC	ON	MB	SK	AB	BC	NT	YT	NU	National Average
%	NV	21	10	NV	NV	20	25	20	20	20	NV	NV	NV	19%

Task 10 Services commercial window and door systems.

	NL	NS	PE	NB	QC	ON	MB	SK	AB	BC	NT	YT	NU	
%	NV	61	50	NV	NV	70	50	50	70	50	NV	NV	NV	57%

Task 11 Services residential window and door systems.

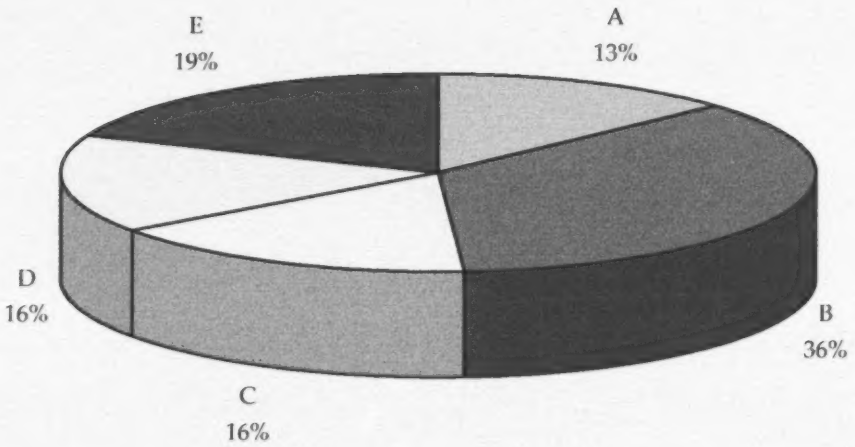
	NL	NS	PE	NB	QC	ON	MB	SK	AB	BC	NT	YT	NU	
%	NV	15	25	NV	NV	15	30	40	10	20	NV	NV	NV	22%

Task 12 Services specialty glass and products.

	NL	NS	PE	NB	QC	ON	MB	SK	AB	BC	NT	YT	NU	
%	NV	24	25	NV	NV	15	20	10	20	30	NV	NV	NV	21%

APPENDIX E

PIE CHART *



TITLES OF BLOCKS

BLOCK A	Occupational Skills	BLOCK D	Specialty Glass and Products
BLOCK B	Commercial Window and Door Systems	BLOCK E	Servicing
BLOCK C	Residential Window and Door Systems		

*Average percentage of the total number of questions on an interprovincial examination, assigned to assess each block of the analysis, as derived from the collective input from workers within the occupation from all areas of Canada. Interprovincial examinations typically have from 100 to 150 multiple-choice questions.

APPENDIX F

TASK PROFILE CHART - Glazier

BLOCKS	TASKS	SUB-TASKS				
A - OCCUPATIONAL SKILLS	1. Uses and maintains tools and equipment.	1.01 Maintains hand tools.	1.02. Maintains portable power tools.	1.03 Maintains stationary power tools.	1.04 Maintains layout and measuring equipment.	1.05 Uses scaffolding and access equipment.
		1.06. Uses rigging, hoisting and lifting equipment.	1.07. Uses personal protective equipment (PPE) and safety equipment.			
	2. Organizes work.	2.01 Interprets plans, drawings and specifications.	2.02. Uses documentation and reference material.	2.03 Communicates with others.	2.04 Prepares list of materials and supplies.	2.05 Plans project tasks.
	3. Performs routine activities.	3.01 Inspects work area.	3.02 Prepares worksite.	3.03 Handles glass and other materials.	3.04 Prepares materials for installation.	3.05 Stores glass and other materials.
		3.06 Performs glass cutting and edge treatment.	3.07 Installs building envelope membranes.	3.08 Installs flashing.	3.09 Applies sealants.	3.10 Maintains safe work environment.
B -COMMERCIAL WINDOW AND DOOR SYSTEMS	4. Fabricates commercial window and door systems.	4.01 Fabricates curtain walls.	4.02 Fabricates storefronts.	4.03 Fabricates window systems.	4.04 Fabricates skylights and sloped glazing systems.	4.05 Fabricates entrance systems.
	5. Installs commercial window and door systems.	5.01 Lays out commercial window and door systems.	5.02 Installs curtain wall systems.	5.03 Installs storefront systems.	5.04 Installs window systems.	5.05 Installs skylights and sloped glazing systems.
		5.06 Installs entrance systems.				

BLOCKS	TASKS	SUB-TASKS				
C - RESIDENTIAL WINDOW AND DOOR SYSTEMS	6. Installs residential window systems.	6.01 Lays out residential window systems.	6.02 Sets windows in openings.	6.03 Glazes windows.		
	7. Installs residential door systems.	7.01 Lays out residential door systems	7.02 Assembles residential door frames.	7.03 Sets residential doors and frames.	7.04 Installs residential door hardware.	7.05 Glazes residential doors.
D-SPECIALTY GLASS AND PRODUCTS	8. Fabricates and installs specialty glass and products.	8.01 Lays out specialty glass and products.	8.02 Assembles specialty glass, products and hardware.	8.03. Installs specialty glass and products.		
	9. Installs glass systems on vehicles.	9.01 Replaces glass on vehicles.	9.02 Repairs laminated glass.			
E- SERVICING	10. Services commercial window and door systems.	10.01 Assesses service requirements for commercial window and door systems.	10.02 Assembles parts and materials for commercial window and door systems.	10.03 Repairs commercial window and door systems.		
	11. Services residential window and door systems.	11.01 Assesses service requirements for residential window and door systems.	11.02 Assembles parts and materials for residential window and door systems.	11.03 Repairs residential window and door systems.		
	12. Services specialty glass and products.	12.01 Assesses service requirements for specialty glass and products.	12.02 Assembles specialty glass and products.	12.03 Repairs specialty glass and products.		